AMENDMENTS

Listing of Claims:

The following listing of claims replaces all previous listings or versions thereof:

1. (Original) An attenuated vaccinia virus comprising a mutation in a first gene encoding an interferon-modulating polypeptide that results in the virus lacking at least a first functional interferon-modulating polypeptide, wherein the interferon-modulating polypeptide directly binds interferon.

2. (Currently amended) The attenuated vaccinia virus of claim 1, wherein the interferon-modulating polypeptide binds IFN-α, ~~or~~ IFN-β, or IFN-γ.

3. (Currently amended) The attenuated vaccinia virus of claim 2, wherein the interferon-binding polypeptide is B18R or B8R.

4. – 5. (Canceled)

6. (Original) The attenuated vaccinia virus of claim 1, further comprising a second mutation in at least one of the following:

a) a second gene encoding an interferon-modulating polypeptide that results in the virus lacking at least a second functional interferon-modulating polypeptide;

b) a gene encoding a complement control polypeptide, wherein the mutation results in the virus lacking at least one functional complement control polypeptide;

c) a gene encoding a TNF-modulating polypeptide, wherein the mutation results in the virus lacking at least one functional TNF-modulating polypeptide;

d) a gene encoding a serine protease inhibitor, wherein the mutation results in the virus lacking at least one functional serine protease inhibitor;

e) a gene encoding an IL-1β modulator polypeptide, wherein the mutation results in the virus lacking at least one functional IL-1β modulator polypeptide;

f) a gene encoding a functional A41L, B7R, N1L or vCKBP chemokine binding polypeptide or C11R EGF-like polypeptide, wherein the mutation results in the virus lacking at least one function of A41L, B7R, N1L, vCKBP, or C11R; or

g) a gene encoding a polypeptide, wherein the mutation results in an increase in infectious EEV form of vaccinia virus.

7. (Original) The attenuated vaccinia virus of claim 1, wherein the virus is the Copenhagen or Western Reserve strain comprising the mutation in the first gene encoding an interferon-modulating polypeptide.
(Canceled) The attenuated vaccinia virus of claim 1, wherein the interferon-binding polypeptide is B8R or B18R.

8. (Canceled)

9. (Original) The attenuated vaccinia virus of claim 6, comprising the mutation in a gene encoding a second interferon-modulating polypeptide that results in the virus lacking at least a second functional second interferon-modulating polypeptide.

10. - 19. (Canceled)

20. (Original) The attenuated vaccinia virus of claim 1, comprising the mutation in a gene encoding a complement control polypeptide that results in the virus lacking at least one functional complement control polypeptide.

21. (Canceled)

22. (Original) The attenuated vaccinia virus of claim 6, comprising the mutation in a gene encoding a TNF-modulating polypeptide that results in the virus lacking at least one functional TNF-modulating polypeptide.

23. (Canceled)

24. (Original) The attenuated vaccinia virus of claim 6, comprising the mutation in a gene encoding a serine protease inhibitor that results in the virus lacking at least one functional serine protease inhibitor.

25. (Canceled)

26. (Original) The attenuated vaccinia virus of claim 6, comprising the mutation in a gene encoding an IL-1β modulator that results in the virus lacking at least one functional IL-1β modulator.

27. (Original) The attenuated vaccinia virus of claim 26, wherein the functional IL-1β modulating polypeptide is B13R or B15R.

28. (Original) The attenuated vaccinia virus of claim 6 comprising a mutation in a gene encoding a functional A41L, B7R, N1L or vCKBP chemokine binding polypeptide or C11R EGF-like polypeptide.

29. – 30. (Canceled)

31. (Original) The attenuated vaccinia virus of claim 6, comprising the mutation that results in an increase in production of infectious EEV form of vaccinia virus.

32. - 34 (Canceled)

35. (Original) The attenuated vaccinia virus of claim 6, wherein the virus comprises more at least two different mutations in a), b), c), d), e), f) or g).

36. (Original) The attenuated vaccinia virus of claim 35, wherein the virus comprises a mutation in g) and at least a mutation in a), b), c), d), e) or f).

37. (Original) The attenuated vaccinia virus of claim 1, wherein the virus is comprised in a pharmaceutical composition.

38. – 40. (Canceled)

41. (Original) An attenuated vaccinia virus comprising a first mutation that results in the virus lacking a functional vC12L or B15R polypeptide.

42. (Original) The attenuated vaccinia virus of claim 41, further comprising a second mutation in at least one of the following:

a) a gene encoding an interferon-modulating polypeptide that results in the virus lacking at least a second functional interferon-modulating polypeptide;

b) a gene encoding a complement control polypeptide, wherein the mutation results in the virus lacking at least one functional complement control polypeptide;

c) a gene encoding a TNF-modulating polypeptide, wherein the mutation results in the virus lacking at least one functional TNF-modulating polypeptide;

d) a gene encoding a serine protease inhibitor, wherein the mutation results in the virus lacking at least one functional serine protease inhibitor;

e) a gene encoding an IL-1β modulator polypeptide, wherein the mutation results in the virus lacking at least one functional IL-1β modulator polypeptide;

f) a gene encoding a functional A41L, B7R, N1L or vCKBP chemokine binding polypeptide or C11R EGF-like polypeptide, wherein the mutation results in the virus lacking at least one function of A41L, B7R, N1L, vCKBP, or C11R; or

g) a gene encoding a polypeptide, wherein the mutation results in an increase in infectious EEV form of vaccinia virus.

43. (Original) The attenuated vaccinia virus of claim 41, wherein the virus is the Copenhagen or Western Reserve strain comprising the mutation in the first gene encoding an interferon-modulating polypeptide.

44. (Original) The attenuated vaccinia virus of claim 41, comprising a second mutation in gene encoding an interferon-modulating polypeptide that results in the virus lacking at least a second functional interferon-modulating polypeptide.

45. – 49. (Canceled)

50. (Currently amended) A method for treating a cancer cell comprising administering to the cancer cell an effective amount of a vaccinia virus either i) unable to express at least one of the following:

a) a functional first interferon-modulating polypeptide;
b) a functional complement control polypeptide;
c) a functional TNF-modulating polypeptide;
d) a functional serine protease inhibitor;
e) a functional IL-1β modulating polypeptide;
f) a functional non-infectious EEV form polypeptide; or
g) a functional A41L, B7R, N1L, vCKBP, or C11R polypeptide.

or ii) comprising a mutation in the gene encoding B8R, B18R, or vC12L.

51. (Original) The method of claim 50, wherein the attenuated vaccinia virus lacks more than one of the following:

a) a functional first interferon-modulating polypeptide;
b) a functional complement control polypeptide;
c) a functional TNF-modulating polypeptide;
d) a functional serine protease inhibitor;
e) a functional IL-1β modulating polypeptide;
f) a functional anti-infectious EEV form polypeptide;
g) a functional A41L, B7R, N1L, vCKBP, or C11R polypeptide; or
h) a functional second interferon-modulating polypeptide.

52. (Original) The method of claim 50, wherein the vaccinia virus lacks a functional first interferon-modulating polypeptide.

53. (Original) The method of claim 52, wherein the vaccinia virus is Copenhagen or Western Reserve strain.

54. (Canceled)

55. (Original) The method of claim 50, wherein the virus lacks at least one functional complement control polypeptide.

56. (Canceled)

57. (Original) The method of claim 50, wherein the virus lacks at least one functional TNF-modulating polypeptide.

58. (Canceled)

59. (Original) The method of claim 50, wherein the virus lacks at least one functional serine protease inhibitor.

60. (Canceled)

61. (Original) The method of claim 50, wherein the virus lacks at least one functional IL-1β modulator.

62. (Canceled)

63. (Original) The method of claim 50, wherein the virus lacks at least one functional anti-infectious EEV form polypeptide.

64. (Canceled)

65. (Original) The method of claim 50, further comprising administering interferon to the cell.

66. (Canceled)

67. (Currently amended) The method of claim 50, wherein the attenuated vaccinia virus is ~~compromised~~ comprised in a pharmaceutically acceptable composition.

68. (Original) The method of claim 50, wherein the cancer cell is a tumor cell.

69. (Original) The method of claim 50, wherein the cancer cell is in a patient.

70. (Original) The method of claim 69, wherein the attenuated vaccinia virus is administered to the patient directly, endoscopically, intratracheally, intratumorally, intravenously, intralesionally, intramuscularly, intraperitoneally, regionally, percutaneously, or subcutaneously.

71. (Original) The method of claim 69, wherein the patient has a solid tumor.

72. (Original) The method of claim 71, further comprising resecting all or part of the solid tumor.

73. – 74. (Canceled)

75. (Original) The method of claim 69, further comprising administering to the patient chemotherapy or radiotherapy.

76. – 79. (Canceled)

80. (Original) The method of claim 50, wherein the cancer cell is a bladder, blood, bone, bone marrow, brain, breast, colorectal, esophagus, gastrointestine, head, kidney, liver, lung, nasopharynx, neck, ovary, pancreas, prostate, skin, stomach, testicular, tongue, or uterus cell.

81. – 83. (Canceled)

84. (Original) The method of claim 50, further comprising administering to the cell a protease or peptidase.

85. (Original) The method of claim 50, wherein the attenuated vaccinia virus is IHD-J strain or comprises a K151D mutation in A34R or comprises a mutation in the gene encoding B5R.

86. (Original) The method of claim 50, wherein the attenuated vaccinia virus is produced from a cell line that overexpresses at least one human complement inhibitory protein.

87. (Canceled)

88. (Original) The method of claim 50, further comprising administering to the cell a microtubule stabilizing agent.

89. – 103. (Canceled)

104. (Currently amended) A method for producing [[a]] the fortified EEV form of vaccinia virus of claim 115 comprising:

a) infecting a human cell line that overexpresses a complement inhibitory protein with a vaccinia virus;

b) isolating the EEV form of the vaccinia virus from the infected cell.

105. – 114. (Canceled)

115. (Original) A composition comprising vaccinia virus in which the composition is at least 50% fortified EEV form of vaccinia virus.

116. (Canceled)

117. (Currently amended) The composition of claim ~~117~~ 115, wherein the composition is at least 70% fortified EEV form of vaccinia virus.

118. (Original) A human cell line for the production of fortified EEV form of vaccinia virus, comprising vaccinia virus and overexpressing at least one complement inhibitory polypeptide.

119. (Canceled)

120. (Original) The human cell line of claim 118, wherein the vaccinia virus is unable to express at least one of the following:

a) a functional interferon-modulating polypeptide
b) a functional complement control polypeptide;
c) a functional TNF-modulating polypeptide
d) a functional serine protease;
e) a functional IL-1β modulator;
f) a functional anti-infectious EEV form polypeptide; or
g) a functional A41L, B7R, N1L, or vCKBP chemokine binding polypeptide or a C11R EGF-like polypeptide.